

Remarks

Summary: By this Amendment and Response, claims 2 and 3 have been canceled, claims 1, and 4-9 have been amended to more specifically define embodiments of the invention, and arguments are presented as to why the presently amended claims are patentable over the cited references.

Amended Claims: Referring to amended claims 1, and 4-9, the more specific definitions of embodiments of the invention include ranking of each of the recited critical conductors. The claimed ranking is in order of the importance of the critical conductors relative to each other. That claimed importance is with respect to the need of the critical conductors to be protected from inductive coupling or capacitive coupling from at least one adjacent conductor. This limitation is supported, for example, by the description at specification page 11, at which reference is made to Fig. 7 and block 80.

Also, the more specific definitions of embodiments of the invention include ranking of each of the recited preferred tracks. The claimed ranking is in order of ranking each of the preferred tracks with respect to all of the other preferred tracks in an order based on which of the preferred track is immediately adjacent to the most constant voltage conductors. This limitation is supported, for example, by the description at specification page 11, at which reference is made to block 82.

Also, the more specific definitions of embodiments of the invention include routing operations in which routing of the critical conductors into the preferred tracks is according to the rankings of both the critical conductors and the preferred tracks. The routing starts with the critical conductor having the highest critical conductor rank being first routed into the preferred track having the highest preferred track

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rank, for example. These limitations are supported, for example, by the description at specification page 12, at which reference is made to block 84. Reference is made to “places the most highly ranked critical conductor at the most preferred location”, for example.

It is respectfully requested that these amended claims be entered and that consideration be given to the patentability of these amended claims.

Response To Paragraph 3 of the Office Action: The rejected claims 7-9 have been amended to restate the subject matter of the claims consistent with the helpful suggestion of the Examiner with respect to a “generic example”. These claims now recite

causes the computer to perform the following for routing conductors in an integrated circuit design:

and this text is followed by various functions. Consideration of amended claims 7-9 as being proper claims is respectfully requested.

Response To Paragraphs 6 and 9 of the Office Action: Wu Does Not Inherently Disclose The Features of the Amended Claims: The as-filed claims were rejected based on Wu, U.S. Patent 5,781,446. For the following reasons, consideration of amended claims 1, and 4-9 as being patentable over Wu is respectfully requested.

The Action asserted that Wu “inherently” discloses iteration and ranking, citing various places in Wu, including C1, C2, C3, C14, C7, C8, C11, C12, and C13, with special note of C7, L1-19.

It is respectfully submitted that in relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably

support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic.

It is respectfully submitted that Wu fails to inherently disclose the now-claimed ranking with respect to both the critical conductors and the preferred tracks, because the allegedly inherent characteristic does not necessarily flow from the teachings of Wu.

Wu's Teachings From Which The Ranking Must Necessarily Flow

Referring first to the specially-noted C7, L1-19, Wu teaches generation of many FVRs (violation-free regions) for which a design rule (DRC) may be available (C7, L1-4). Wu lists exemplary constraints that may be addressed and for which the FVRs may be generated (C7, L4-13). Reference is made to “decisions involving multiple constraints”, and “early design tradeoffs” (C7, L13-20). However, neither those “decisions” nor those “tradeoffs” specify details, and neither refers to or suggests the specific now-claimed ranking of both the critical conductors and the preferred tracks.

The rejection of the as-filed claims did not indicate any basis in fact and/or a technical reasoning to reasonably support the determination that the allegedly inherent characteristic (the general idea “ranking”) necessarily flows from the disclosure of the “decisions involving multiple constraints”, and “early design tradeoffs” (C7, L13-20), for example. As to the more detailed, now-claimed rankings, and as to routing using both of those now-claimed rankings, without an Examiner-provided basis in fact and/or a technical reasoning to reasonably support the determination that the allegedly general idea of “ranking” necessarily flows from the disclosure, it is even less clear

how these now-claimed features would be “inherent” in Wu.

For example, Wu deals with many constraints (e.g., the constraints for which the FVRs may be generated, C7, L4-13). The direct teaching of Wu appears to be of a tradeoff between meeting one constraint or meeting another constraint. Without the requisite Examiner-provided basis in fact and/or a technical reasoning, there is no basis of record on which to determine how or whether Wu’s tradeoff between meeting one constraint or meeting another constraint, would necessarily involve the now-claimed ranking of critical conductors according to one particular constraint, i.e., how to protect the critical conductors from inductive coupling or capacitive coupling from at least one adjacent conductor.

The same lack of the requisite Examiner-provided basis in fact and/or a technical reasoning applies to the now-claimed ranking of each of the recited preferred tracks. That claimed ranking is in order of ranking each of the preferred tracks with respect to all of the other preferred tracks in an order based on which of the preferred track is immediately adjacent to the most constant voltage conductors. That preferred track ranking is thus related to the one particular constraint for which the critical conductors were claimed as being ranked, and enables a most critical (highest ranked) conductor to be protected the most.

This claimed highest protection starts after the Wu decision to favor Wu’s one constraint, i.e., after Wu’s decision to rely mainly on one constraint. Thus, the claimed use of the one constraint is Applicants’ “start”, and the claimed invention follows by performing the claimed dual ranking, and then routing based on the dual ranking. These claimed dual ranking operations and instructions enable one to make the best use of that one selected constraint. Without the requisite Examiner-provided basis in fact and/or a technical reasoning, there is no basis of record on which to

determine how or whether Wu's tradeoff (between meeting one constraint or meeting another constraint), would necessarily be followed by the now-claimed routing based on dual ranking.

Since special note was made to Wu at C7, L1-19, it is assumed that the Examiner thought this was the most pertinent of the cites to Wu in re the "inherent" rejection. However, for completeness of response, reference is made below to the other cites.

C1, L28-45 also fail to inherently disclose the now-claimed ranking with respect to both the critical conductors and the preferred tracks. In direct disclosure, a single entity is referenced (C1, L32-34). No reference is made in L28-45 to ranking that one entity with respect to one routing criteria and with respect to all other entities that have a common characteristic. Thus, for example, in Wu there is no claimed "critical" aspect of critical conductors. The same applies to the claimed ranking of the preferred tracks. The C1, L41 "protocol" simply fails to even suggest the claimed dual ranking in re one routing criteria, and then routing based on both ranks. This inherency rejection of the as-filed claims did not indicate any basis in fact and/or a technical reasoning to reasonably support the determination that the allegedly inherent characteristic (the general idea "ranking") necessarily flows from the disclosure of the "single entity", and "protocol", for example.

C2, L4-9 also fail to inherently disclose the now-claimed ranking with respect to both the critical conductors and the preferred tracks. The reference is to manually completing the system design. Respectfully, Applicants do not see how even generic ranking could be "inherent" in manual system design, and this inherency rejection of the as-filed claims did not indicate any basis in fact and/or a technical reasoning to reasonably support the determination that the allegedly inherent characteristic (the

general idea “ranking”) necessarily flows from the disclosure of the “manually completing” concept, for example.

C3, L5-17 also fail to inherently disclose the now-claimed ranking with respect to both the critical conductors and the preferred tracks. The cited reference is to “best meeting a plurality of design constraints” (L9), which again (similar to the cite at C7) may involve choice among the many constraints. No reference is made in L5-17 to ranking that one entity with respect to one constraint and with respect to all other entities that have a common characteristic, which, for example, characterizes the claimed “critical” aspect of the critical conductors. The same applies to the claimed ranking of the preferred tracks. This inherency rejection of the as-filed claims did not indicate any basis in fact and/or a technical reasoning to reasonably support the determination that the allegedly inherent characteristic (the general idea “ranking”) necessarily flows from the disclosure of the “best meeting a plurality of design constraints”, for example.

C8, L10-45 also fail to inherently disclose the now-claimed ranking with respect to both the critical conductors and the preferred tracks. The cited reference is to placing a trace in a valid FVR region. The direct teaching here, and from L45 onto C9, is that the “placing” enables any two items (see exemplary #1 and #4 at L52-55) to be subjected to an analysis (e.g., “logical OR, etc., L56). This is said to allow for “pruning” (C7, L67). This inherency rejection of the as-filed claims did not indicate any basis in fact and/or a technical reasoning to reasonably support the determination that the allegedly inherent characteristic (the general idea “ranking”) necessarily flows from the disclosure of the “placing”, which enables any two items (#1 and #4 at L52-55) to be subjected to an analysis “best meeting a plurality of design constraints”, for example.

Also, it is respectfully submitted that an inherency rejection applied to the as-filed claims could not properly indicate that Wu's use of two items, and the resultant pruning of one such item, would not be a clear teaching away from the now-claimed dual ranking in which only one critical conductor is selected as the most critical at any time of routing, and in which only one preferred track is selected as the most preferred track at that time of routing, and no pruning occurs. Thus, inherency in Wu of the now-claimed embodiment cannot properly be based on Wu's teaching of pruning (C7, L67), or making a further selection among already selected items, because the teaching of further selection is opposite to Applicants' now- claimed embodiment of the invention, which must use (and cannot discard) the next selected remaining critical conductor, which is the then-most critical conductor, and which is used with the then-most preferred track at the time of routing.

C11, L57-C12, L44 also fail to inherently disclose the now-claimed ranking with respect to both the critical conductors and the preferred tracks. The description at this cite is of "neighbor relationships" between components (e.g., those having timing relationships, C11, L60). Significantly, the direct teaching is that in routing these neighbors, "A first component" is "**arbitrarily** picked as a placement candidate and located in a generally **arbitrary** FVR" (emphasis added, C12, L3-5). This inherency rejection of the as-filed claims did not indicate any basis in fact and/or a technical reasoning to reasonably support the determination that the allegedly inherent characteristic (the general idea "ranking") necessarily flows from this disclosure of "arbitrary" picking and locating of the first component. Further, it is respectfully submitted that an inherency rejection applied to the as-filed claims could not properly indicate that Wu's "**arbitrarily** picked as a placement candidate and located in a generally arbitrary FVR" would not be a clear teaching away from the now-claimed

dual ranking in which the most critical conductor is selected at any time of routing, and in which the most preferred track is selected at that time of routing, and in which those most critical and most preferred items are the specific first (and not arbitrary) ones picked at the time of routing.

Thus, inherency in Wu of the now-claimed embodiment cannot properly be based on this teaching by Wu, because the Wu arbitrary selection of a first component not only factually fails to make the claimed embodiment be inherent in Wu, but indicates that Wu teaches away from the dual ranking and then first routing a critical conductor according to whether it is most critical. Moreover, whereas Wu clearly says that the arbitrarily picked component is “located in a generally arbitrary FVR”, the amended claims define routing of that non-arbitrary conductor into a non-arbitrary, and instead highest-ranked, track. Such claimed track ranking and use of that track ranking is not arbitrary, and instead is opposite to the Wu arbitrary, such that Wu teaches away from the now-claimed embodiment.

C13, L11-23 also fail to inherently disclose the now-claimed ranking with respect to both the critical conductors and the preferred tracks. The description here is of generic references to other placement techniques. Respectfully, Applicants do not see how these generic references could reasonably render the now-amended claims “inherently” present in Wu. In support, reference is made to the above evaluations of the detailed cited passages from Wu, and the fact that this inherency rejection of the as-filed claims did not indicate any basis in fact and/or a technical reasoning to reasonably support the inherency determination.

C14, L30-60 also fail to inherently disclose the now-claimed ranking with respect to both the critical conductors and the preferred tracks. The description here is of a range of valid position placements (L30, L37, L47, e.g.). The next entity to

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which Wu claim 11 refers is apparently one of the neighbor components noted with respect to the C11 cited discussed above. In view of the detailed teaching away of the C11 cite, the C14 cite does not provide a valid basis for Wu to inherently teach the now-claimed embodiment, and this inherency rejection of the as-filed claims did not indicate any basis in fact and/or a technical reasoning to reasonably support the inherency determination.

If the Examiner responds to the amended claims by continuing the inherency-based rejection of the amended claims, it is respectfully requested that in addition to a citation to the place in the Wu (column and lines) on which the asserted inherency is based, the rejection further provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. Otherwise Applicants will not (as now) know the detailed basis for the rejection and will (as now) be unable to respond to what the rejection intended but did not state.

In the absence of such basis and technical reasoning, in view of the above remarks, consideration of amended claims 1, and 4-9 as being patentable over Wu is respectfully requested.

Response To Paragraphs 6 and 10 of the Office Action: Fujii Does Not Disclose All Of The Features of the Amended Claims: The as-filed claims were rejected based on Fujii, U.S. Patent 5,883,812. For the following reasons, consideration of amended claims 1, and 4-9 as being patentable over Fujii is respectfully requested.

The Action identified features of Fujii that assertedly disclose routing, track assignment, track re-assignment, and automated routing. These include cites to Figs. 2-3, Fig. 4, Fig. 6, Fig. 8, Fig. 10, and C1, L7 to C3, L48.

These cites have been reviewed, and it is respectfully submitted that none describes or suggests the now-claimed ranking of critical conductors according to one particular constraint, namely, how to protect the critical conductors from inductive coupling or capacitive coupling from at least one adjacent conductor. Further, none teaches the now-claimed ranking of each of the recited preferred tracks. That claimed ranking is in order of ranking each of the preferred tracks with respect to all of the other preferred tracks in an order based on which of the preferred track is immediately adjacent to the most constant voltage conductors. That preferred track ranking is thus related to the one particular constraint for which the critical conductors were claimed as being ranked, and enables most critical (highest ranked) conductor to be protected the most, via the claimed routing.

In detail, in Fujii the net pairs n and n' are not ranked. Instead, one routing is dealt with in re Fig. 1A. Moreover, the use of an empty track (CVC) for only one critical conductor is an event to be avoided by the presently-claimed embodiments. Further, as to Fig. 3 and C2, L13+, the defined calculation does not rank critical conductors by criticality in re the defined coupling, nor does the calculation rank preferred tracks by quietness. As to Fig. 4, and C4, L45+, the goal is to minimize the number of other nets crossing the target net, (L52-53) and is not a comparative ranking within a set of nets. Further, once a set of nets is defined (C5, L3+), there is no such ranking of the nets that are within the set, as is claimed, i.e., in Fujii the members of the set are not ranked with respect to each other. See also Fig. 8, C6, L47+. Step S506 (C7, L37-45) is applicable to all pairs in the set P.

Further, the tracks into which the set of nets are to be placed meet a general criteria, and again are not ranked one with respect to another. As to Fig. 6, and C5, L37+, neither condition to be satisfied by a net pair is ranking. Moreover, the tracks

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are not ranked within a group of tracks that satisfy a particular constraint (C6, L20).

Fig. 10 is described at C7, L63-C9, L5. Net pairs are deleted (L49-50) but no ranking is taught in re net pairs that remain in the net list. Similarly, the description of Figs. 11A and 11B teaches division of a trunk (L17+) and limiting length of interconnections, and does not teach the claimed dual ranking in combination with routing first the highest ranked critical conductor into the highest ranked preferred track.

In view of the above remarks, consideration of amended claims 1, and 4-9 as being patentable over Fujii is respectfully requested.

Response To Paragraphs 7 and 11 of the Office Action: Linsker Does Not Disclose

All Of The Features of the Amended Claims: The as-filed claims were rejected based on Linsker, U.S. Patent 4,615,011. Consideration of amended claims 1, and 4-9 as being patentable over Linsker is respectfully requested for the following reasons.

The Action identified features of Linsker that assertedly disclose iterative routing, penalty function, routing based on criterion, rerouting, and priority, for example, including cites to the Abstract; Figs. 4-6; C1, L7-16; C2; C3, L1-24; C6, L46-48; C7, L34-68; and C11, L 22-40.

These cites have been reviewed, and it is respectfully submitted that none describes or suggests the now-claimed ranking of critical conductors according to one particular constraint, namely, how to protect the critical conductors from inductive coupling or capacitive coupling from at least one adjacent conductor. Further, none teaches the now-claimed ranking of each of the recited preferred tracks. That claimed ranking is in order of ranking each of the preferred tracks with respect to all of the other preferred tracks in an order based on which of the preferred track is immediately

adjacent to the most constant voltage conductors. That preferred track ranking is thus related to the one particular constraint for which the critical conductors were claimed as being ranked, and enables most critical (highest ranked) conductor to be protected the most.

In detail, as to the Abstract and descriptions at C1 and C2, the priority routing of VSNs is by length of conductor (C2, L25+) or is serial based on penalties (C1, L50+). This does not teach nor suggest the now-claimed dual ranking nor routing for a first-ranked conductor based on that dual ranking. Rather, a user specification of penalties is used in serial routing, and without regard to any rank of the conductors to be routed. This teaches away from the now-claimed dual ranking and routing.

As to the penalty costs at C2, the reduction of unrouted connections (C2, L60) via the penalty costs does not teach or suggest the now-claimed dual ranking and routing. The finding of a lowest cost path does not suggest also finding a most critical conductor, since the goal is related to all of the conductors, namely, reduction of unrouted connections rather than a goal of the now-claimed methods and apparatus, which is to be sure to route the most critical conductor to the quietest track.

As to other goals, at C3, L1-24, these other design goals again do not teach or suggest the now-claimed dual ranking and routing. In detail, the goals at C3, L10-13 are not now-claimed dual ranking and routing, and at C31 low cost is noted as a goal.

At C3, L48-49 there is a teaching opposite to the claimed dual ranking and routing, because having a large number of possible moves for each connection at each pass is a teaching away from the claimed identifying one critical conductor, and for that one conductor choosing only the next-highest-ranked one of the preferred tracks. The claims simply do not allow a large number of possible moves for each connection at each pass, and instead only allow one “move” into the one next-highest-ranked

preferred track.

As to the next-cited C6, L46-68, the priority is between global and detailed types of routing, which does not involve the now-claimed dual ranking and routing. At C7, L34-68, the direct teaching is to have a “connection selected arbitrarily from among the connections not yet selected on the present pass.” As noted above, an arbitrary selection, whether of a conductor or a connection, is contrary to the claimed concept of ranking both the conductors and tracks, and teaches away from the claimed embodiments. Similarly, the C11, L22-40 cite refers to determining if all connections have been considered, and if not, “selecting a connection not previously considered.” There is no teaching here as to any basis for ranking by which that selection of a next conductor to be routed would be made. Beyond the cites, at C13, L14, the “job priority list” at C13, L15 is a list of ordered tasks relating to each iterative pass, and not a teaching of ranking the critical conductors and routing the highest current ranked critical conductors into the highest current ranked preferred track.

In view of the above remarks, consideration of amended claims 1, and 4-9 as being patentable over Linsker is respectfully requested.

Response To Paragraph 13 of the Office Action: It Would Be Improper To Reject The Amended Claims Based On The Official Notice Rejection Or On Inherency Of The Huang Disclosure

Response to The Official Notice Rejection

The as-filed claims were rejected based on Huang, U.S. Patent 5,568,395. For the following reasons, consideration of amended claims 1, and 4-9 as being patentable over Huang is respectfully requested.

The Action asserted that

“official notice is taken that one of ordinary skill in the art at the time the invention was made would appreciate indentifying [sic] the worst victim nets or lines and reroute them to the ‘quietest’ place before dealing with other instances of crosstalk which are not as critical.”

Based on this statement, it appears that the facts asserted to be well-known are the following:

Asserted Facts: One of ordinary skill in the art at the time the invention was made would appreciate indentifying [sic] the worst victim nets or lines and reroute them to the ‘quietest’ place before dealing with other instances of crosstalk which are not as critical.

#### Citation To MPEP

Reference is made to MPEP 2144.03 C., at which it is stated that:

“To adequately traverse such a finding...” (i.e., by the Examiner per official notice without documentary evidence) “...an applicant must specifically point out the supposed errors in the examiner’s action, which would include why the noticed fact is not considered to be common knowledge or well-known in the art.”

#### Specific Pointing Out Of The Supposed Errors In The Examiner’s Action

The following specifically points out the supposed errors in the Examiner’s action.

It is respectfully submitted that the:

- (1) official notice of the rejection is without documentary evidence;
- (2) the technical line of reasoning underlying the decision to take the official notice is not clear and unmistakable (MPEP 2144.03 B);
- (3) the first supporting statements which preface the statement of the official notice, and which refer to “essentially ranking”, are not consistent with the Huang disclosure;
- (4) the second supporting statements which preface the statement of the

official notice, and which admit limitations of the Huang disclosure, are not sufficient to support the official notice; and

(5) the circumstances here make the notice improper because the facts asserted (see above) are not capable of instant and unquestionable demonstration as being well-known, as is required under MPEP 2144.03A, page 2100-136, first column, which relates to rejection without documentary evidence.

Submittal (1). The official notice of the rejection is without documentary evidence.

In support, it is noted that the only statement of the notice is in the Action (page 5, lines 10-14), which does not qualify as documentary evidence.

Submittal (2). The asserted facts (see above) are not capable of instant and unquestionable demonstration as being well-known because the statement of the “facts” is not clear, and alternatively, the technical line of reasoning underlying the decision to take the official notice is not clear and unmistakable as required under MPEP 2144.03 B, because the statement of the “facts” is not clear.

In support, the statement sets forth “...would appreciate indentifying [sic] the worst victim nets or lines...”. Respectfully, after changing “indentifying” to “identifying”, there is still no “subject” set forth relating to the “would appreciate” phrase. The statement leaves the reader asking: “What would that one skilled in the art appreciate?” Applicants should not have to speculate as to what is meant to be “appreciated”.

In view of how the asserted facts are stated without a subject, and in view of

the questions that would reasonably be asked by a reader of the statement, the statement of the “asserted facts” is not clear. Therefore, the technical line of reasoning underlying the decision to take the official notice is not clear and unmistakable. As a result, the facts do not comply with MPEP 2144.03 B.

Submittal (3). The technical line of reasoning that prefaces the statement of the official notice, and that refers to “essentially ranking”, is not consistent with the Huang disclosure, such that this technical line of reasoning is not clear and unmistakeable as required in MPEP 2144.03 B.

In support, the technical line of reasoning that prefaces the statement of the official notice includes a series of statements asserting two teachings of Huang that are characterized by the Examiner as being “essentially a ranking”. It is shown below that neither of these teachings is “essentially a ranking” in the context in which “ranking” is used in the presently amended claims, such that this technical line of reasoning is not supported by the teachings of Huang.

To place the word “ranking” in proper context, reference is made to the current claimed usage of “ranking” as relates to the critical conductors, for example.

Claim 1: Ranking In Re Critical Conductors:

ranking the critical conductors in order of the importance of the critical conductors relative to each other, the importance being with respect to the most need to be protected from inductive coupling or capacitive coupling from at least one adjacent conductor;

Claims 4 and 7: Ranking In Re Critical Conductors:

ranking each of the critical conductors with respect to all of the other critical

conductors in an order based on the importance of protecting each particular critical conductor from inductive coupling or capacitive coupling from at least one adjacent conductor;

The first prefatory statement (that each of two disclosures in Huang is “essentially a ranking”) is not supported by the teachings of Huang for the following reasons:

(a) Disclosure A was asserted as being “essentially a ranking”, and is:

“fig. 13 (#1304-screening [essentially a “ranking”]...”

As noted below, analysis of Fig. 13 requires review of another cited passage of Huang, which was cited as follows:

“col. 14, lines 13-33 (details concerning the screening—  
this is essentially a ranking)”

Therefore, the discussion below responds to both the col. 14 and the Fig. 13 assertions.

Referring first to Fig. 13 of Huang, Fig. 13 includes block #1304, which reads “Screen Victim Signal nets”. At C13, L64 a discussion of Fig. 13 starts with a heading “III. Crosstalk Estimation and False Logic Detection”. The process of Fig. 13 is said to evaluate a circuit for crosstalk noise between culprit and victim signal nets. In block #1302, all signal paths (“signal nets”) in the circuit are identified (C14, L7-13).

A description of block #1304, asserted as “[essentially a “ranking”]”, is set forth at C14, L13-62, which is noted above as being separately asserted (at page 5,

lines 6-7) as a separate source of the asserted “[essentially a “ranking”]” teaching of Huang.

The gist of this disclosure at col. 14, L13-33 is that the identified signal nets are:

“screened at block #1304 to identify those small fraction of nets that are most likely to have crosstalk violation (i.e., false logic) and need to be analyzed.”

This “screening” thus groups together a small number of nets that have to be analyzed. The grouping is based first on Table 2 at C14, which defines two thresholds against which the nets are first screened. Then, drawing from the Table 2 information (C14, L64-67), the to-be-analyzed nets are finally identified by whether they “satisfy” two criteria that are set forth at C15, L1-5. The nets in the group (i.e., the nets that need to be analyzed) are summarized as follows (C15, L51-53):

“identifying those nets warranting further analysis (i.e., , nets most likely to experience false logic due to crosstalk noise).”

Respectfully, it is submitted that no ordering of the victim nets is disclosed at or with respect to block #1304, and no “essential” aspect of ordering has been disclosed. In the context used in the rejection, “essential” means “actually”, that is, actually being a form of ranking. However, Huang’s teaching is in terms of “screening”, and the examples of this “screening” only result in two lists of victim nets. One list only includes those nets warranting further analysis. The other list is victim nets not warranting further analysis.

Moreover, as a clear indication that Huang does not engage in any “ranking”, or ordering of the elements within a list, Huang teaches (C17, L51-60) that the one list of victim nets (warranting further analysis, i.e., victim nets most likely to experience

false logic due to crosstalk noise) is not ordered at all, and thus is not ordered as claimed. As a result, Huang does not order that list of victim nets within the list (in an order based on the importance of protecting each particular critical conductor from inductive coupling or capacitive coupling from at least one adjacent conductor). Rather, and contrary to the claimed “ranking”, C17, L51-60 teach that the “analysis” of victim nets listed in the “further analysis” list effectively results in a YES or NO decision. That is, for each victim net in the list, the further analysis results in either false logic or no false logic. The analysis does not order the listed victim nets one with respect to any other on the list. In other words, in Huang, there is no placement of nets into an order of 1, 2, 3, 4, etc. To the contrary, as stated at C17, L57-59:

“should the crosstalk system detect any false logic, the affected signal nets are re-routed, and the design is re-analyzed...”

Clearly, the analysis results discard any victim net that is subject to false logic. If no false logic is detected, the analyzed net is accepted.

It is respectfully submitted that this review of Huang clearly shows that there is no support in the teachings of Huang for the assertion in the technical line of reasoning that “Fig. 13 (#1304-screening)” is “essentially a ranking”; and also no support in the teachings of Huang for the assertion in the technical line of reasoning that “col. 14, lines 13-33 (details concerning the screening...)” is “essentially a ranking”.

(b) Disclosure B was asserted as being “essentially a ranking”, and is:

“col. 1, line 6 to col. 2, line 34 (details concerning crosstalk, routing, rerouting, threshold (essentially a ranking))”

Col. 1, line 6 first describes crosstalk, identifies instances of the most significance of crosstalk (fast-switching culprits), and notes that SPICE programs take too much time

to do an evaluation of crosstalk noise (L10-31). In the Huang invention, a CAD system is said to be provided for modeling. Reference is made (C2, L10-16) to the above-noted thresholds, and the detection of false logic, including (L18) false logic due to crosstalk. A CAD system is said to do calculations (C2, L23) relating to victim nets, but no reference is made in L17-67 to “ranking” such nets or even to “screening” such nets, except in reference to FIG. 14 (L67).

It is respectfully submitted that this review of Huang clearly shows that there is no support in the teachings of Huang for the assertion in the technical line of reasoning that Disclosure B “col. 1, line 6 to col. 2, line 34 (details concerning crosstalk, routing, rerouting, threshold (essentially a ranking))” of the first prefatory statement is “essentially a ranking”. Further, any relationship of the above C1 and C2 disclosures to “screening” would be in the context discussed above in re Disclosure A, which the foregoing remarks clearly show does not support the claimed “ranking”.

It is respectfully submitted that to have a proper technical line of reasoning underlying a decision to cite the official notice, the characterization of the source (Huang) of the technical line of reasoning must be accurate. Respectfully, the above remarks show that the references (in the preface to the official notice) to “essentially ranking” with respect to each of Disclosure A and Disclosure B, are not consistent with the Huang disclosure, and are thus not accurate. As a result, there is no proper technical line of reasoning underlying the decision to cite the official notice. Based on MPEP 2144.03C, the official notice is not proper.

Submittal (4). The second supporting statements of the technical line of reasoning which preface the statement of the official notice, and which admit limitations of the Huang disclosure, are not sufficient to support the official

notice.

The technical line of reasoning includes another preface to the statement of the official notice. This preface is a series of statements admitting that Huang does not “expressly disclose” three claimed elements that relate to the presently amended claims, and that include the phrase “relative ranking”.

This second of the two prefatory statements also tries to “set the stage” for the subject matter that is the subject of the official notice. Because this second preface is the above-noted series of admissions as to three claimed elements that Huang does not “expressly disclose”, this second preface cannot be the required (MPEP 2144.03B) specific factual finding by the Examiner to support the “finding” as to what one skilled in the art “would appreciate”, and cannot be a provision of concrete evidence to support the “finding” as to what one skilled in the art “would appreciate”. In detail, an admission by the Examiner identifying claimed text that a reference does not teach, is a recognition of what Applicants view as their invention, and a recognition of what the reference fails to show, and cannot properly show what one skilled in the art would “appreciate”.

Submittal (5). The circumstances here make the notice improper because the facts asserted (see above) are not capable of instant and unquestionable demonstration as being well-known, as is required under MPEP 2144.03A, page 2100-136, first column, which relates to rejection without documentary evidence.

Applicants respectfully traverse the finding of official notice. In detail, each of Submittals (1) – (4) is, on its own, enough basis for the noticed fact not to be

considered to be common knowledge or well-known in the art. If there is any doubt as to any one of those Submittals being sufficient, it is respectfully submitted that when any two or more of such Submittals (1) – (4) are taken together, those combined Submittals show that the asserted facts are not capable of instant and unquestionable demonstration as being well-known. Applicants' points advanced in the Submittals are believed to be reasonable, and are submitted as evidence that the asserted facts are incapable of instant and unquestionable demonstration as being well-known.

If the Examiner responds to the amended claims by continuing an official notice rejection of the amended claims citing Huang, it is respectfully requested that the further rejection provide a proper basis by which it would be clear that the asserted facts are capable of instant and unquestionable demonstration as being well-known. Based on the above remarks relating to Huang, it is respectfully submitted that such a showing cannot be made, and it is respectfully requested that amended claims 1, and 4-9 be considered as being patentable over Huang.

Response To Inherency Rejection In Re Huang

As advanced above, in relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.

Reference is made to the one sentence inherency rejection that appears at the end of paragraph 13 (page 5) of the Office Action.

Respectfully, the reference therein solely to "thresholds" and "screening" is not an adequate basis to support the inherency determination. As to the substance of this rejection, reference is made to the above Submittal (3). The analysis there is sufficient, it is submitted, to overcome the above-noted one sentence assertion of the

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rejection, and it is further submitted, to overcome any further rejection based on the inherency of Huang as relates to the current amended claims.

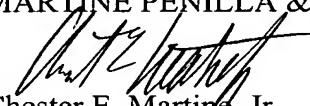
If however, the Examiner responds to the amended claims by continuing the inherency rejection of the amended claims citing Huang, it is respectfully requested that the further rejection provide a proper showing of a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of Huang.

Based on the above remarks relating to Huang, it is respectfully submitted that such a showing cannot be made, and it is respectfully requested that amended claims 1, and 4-9 be considered as being patentable over Huang.

Should the Examiner have any questions concerning this Application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,

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